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Supporting Enterprise Networks and Operating Environments

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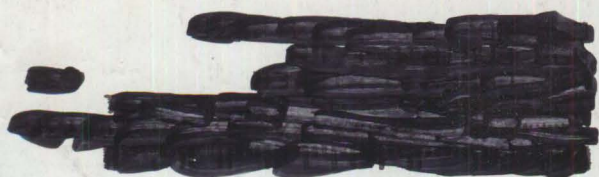
MAY 1995

Volume 3, Number 5

High-Performance Remote Access

Enterprisewide Printing Strategies

**MVS Performance Tuning
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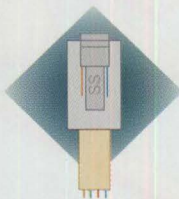
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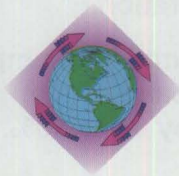


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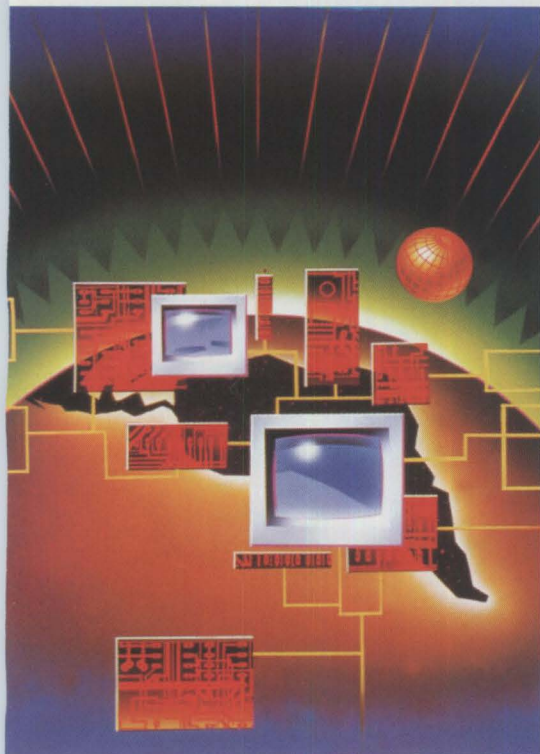


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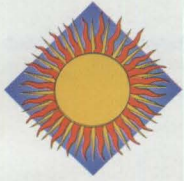
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FROM THE PRESIDENT



Dear NaSPA member;

You may have seen the article published in the February 13, 1995 issue of *Computerworld* titled, "Associations Fight Declining Memberships." This article referenced the decline in membership growth of the Data Processing Management Association (DPMA), the Association for Systems Management (ASM), the Society of Information Management (SIM), and the Association for Computing Machinery (ACM). I personally found it disheartening to learn of the decline of these associations. I have empathy for the staffs, leaders, and above all, the members of these associations.

POSITIONED FOR GROWTH

I am pleased to inform you that NaSPA is growing! While the fate of the other associations is unfortunate, I must point out that NaSPA, *The Association for Corporate Computing Technical Professionals*, is beginning its 10th year of service and has experienced membership growth of 20 percent in the past 12 months! We currently provide 30,000 members in the United States and 65 other countries with a variety of benefits to meet their professionals needs as well as personal goals.

We've listened to you, our members, and we continue to listen. We've modified the editorial content and increased the page count of *Technical Support* magazine to reflect today's use of heterogeneous computing platforms. We're closely aligned with several leading education vendors to provide discounts on classes, seminars, books, videos, etc.

Additionally, we offer a comprehensive insurance program, a job placement service, local chapters, the NaSCOM bulletin board system which is connected to the Internet, and long-distance/data communications savings programs through MCI. The message is clear: As an association, we're committed to providing service to our members and continued growth!

DO YOU REMEMBER...?

As I mentioned, we are beginning our 10th year of service in the corporate computing world. In honor of this anniversary, we will be chronicling the first 10 years of NaSPA in an upcoming issue of *Technical Support* magazine. Because so much has happened in the association and the computing environment during the past 10 years, we need your help remembering it all. Do you have a personal story you'd like to share with other readers about your experiences as a NaSPA member? What type of system(s) were you running back in 1986? What changes have you seen take place in your workplace? The editors of *Technical Support* need your insight. Drop Editor Amy Birschbach a note on NaSCOM (ID: EDITOR), the Internet (editor@nascom.com), CompuServe (70373,1513) or call her at (414) 423-2420 Ext. 123.

Sincerely,

Scott Sherer

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BY ROBERT SIMPSON

OS/2, UNIX and Oracle: An Unlikely Combination?

Using OS/2 to Manage UNIX and Oracle: Part III — Oracle SQL*Plus

*Oracle's SQL*Plus is just one of the tools that can be easily accessed from either UNIX or OS/2.*

This is the third of a five-part series on managing UNIX and Oracle using OS/2. This article and the next describe an approach to managing the Oracle DBMS using scripts written for one of the Oracle utilities, SQL*Plus.

Although this article is written specifically for the Oracle DBMS, you may find that a similar approach works well with other UNIX-based database management systems. The only requirement is the existence of a utility which can be used to execute database functions from the UNIX command line.

This article explains how to set up UNIX and OS/2 to allow SQL*Plus to be easily executed from either environment and provides some useful examples of SQL*Plus scripts. SQL*Plus is not the only tool we can access from OS/2. The other Oracle tools can also be useful, and certain functions can be performed using the tools provided with UNIX itself.

If you have any DOS and Windows programs which access an Oracle database, you will need to obtain the Oracle SQL*VDM product to run those programs in a Virtual DOS Machine (VDM) under OS/2.

ACCESSING AN ORACLE DATABASE FROM OS/2

One major advantage of the Oracle DBMS is that the Oracle relational database, networking functions and utilities are available on a variety of platforms, including MVS, NetWare, OS/2 and many flavors of UNIX. As a result of a good separation of function and cross-platform compatibility, the utilities on one platform can be used to manage a database that resides on another. The Oracle networking and utilities SQL*Net, SQL*DBA, and SQL*Plus are available for OS/2.

There is one fact that is not well known which I want to mention here, even though it has little bearing on the rest of this article. If you have any DOS and Windows pro-

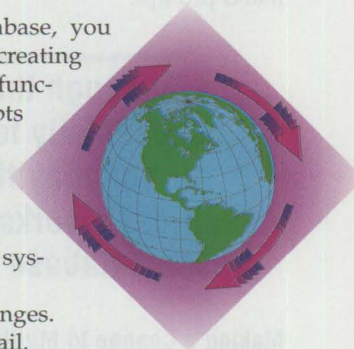
grams which access an Oracle database, you will need to obtain the Oracle SQL*VDM product to run those programs in a Virtual DOS Machine (VDM) under OS/2. SQL*VDM provides application programs with an interface equivalent to SQL*Net, but instead of communicating directly with the Oracle database, it uses the SQL*Net for OS/2 running outside of the virtual machine.

Using SQL*VDM, you could run the Oracle utilities for DOS or Windows in a full-screen or windowed session under OS/2. With these utilities, however, you will be restricted to using file names conforming to the "8.3" convention used in DOS. I would recommend getting the native OS/2 versions of the Oracle utilities, rather than using the DOS or Windows versions.

USES FOR SQL*PLUS SCRIPTS

If you are managing an Oracle database, you probably already know the value of creating SQL*Plus scripts to perform various functions. Some advantages of using scripts include:

- increases consistency and standardization;
 - simplifies repetitive tasks;
 - makes the same change to multiple systems; and
 - reduces the effort to perform mass changes.
- Let's look at each advantage in more detail.



Consistency and Standardization

An SQL statement is made up of keywords and parameters. When writing a script, the keywords are normally hard coded. The values of the parameters can come from three different sources:

- text hard-coded in the script;
- replaceable parameters; and
- values in the database itself.

Hard-coding an SQL parameter in the script ensures that the same value will be used for that parameter every time anyone uses the script to perform its particular function. Many parameters can be standardized in this manner: data file path names, default and temporary tablespace names for users, a set of roles for a particular group of users, etc.

Figure 1: UNIX Shell Script /usr/yourUsername/bin/sqlp

```

/bin/echo "sqlp @$*"
/bin/echo "\012"
env ORACLE_HOME=/u/oracle ORACLE_SID=PROD
+ /u/oracle/bin/sqlplus
+ yourOracleUsername/yourOraclePassword @/util/dba/$* '\'
```

Note:

+ indicates a line which is shown as a separate line but should be typed as a continuation of the previous line.

Figure 2: UNIX Shell Script /usr/yourUsername/bin/sqlt

```

/bin/echo "sqlt @$*"
/bin/echo "\012"
env ORACLE_HOME=/u/oracle /u/oracle/bin/sqlplus
+ yourOracleUsername/yourOraclePassword@t:testHostname:TEST
+ @/util/dba/$* '\'
```

Note:

+ indicates a line which is shown as a separate line but should be typed as a continuation of the previous line.

Figure 3: OS/2 REXX Command Procedure u:\cmd\sqlp.cmd Using SQL*Plus for OS/2

```

/* SQLP.CMD */
parse arg script parms
sqlpath = 'u:\dba\'
file = sqlpath || script'.sql'
if stream(file,'c','query exists') == '' then do
  say script 'is not a valid SQL*Plus script name'
  exit
end /* Do */
'@echo off'
'echo sqlp.cmd' script parms
'sqlplus yourUsername/yourPassword@t:prodHostname:PROD
+ @'sqlpath || script parms
exit
```

Simplifying Repetitive Tasks

If we can make it easier to execute SQL*Plus scripts, some DBA functions can be moved into the production control and help desk areas. At my company, these groups now handle requests to reset passwords and problems that require determining which users are holding database locks, among other tasks, using SQL*Plus scripts executed from an OS/2 command prompt.

Although this article is written specifically for the Oracle DBMS, you may find that a similar approach works well with other UNIX-based database management systems.

Making a Change to Multiple Systems

Often, for one-time changes, such as modifications to database tables, you can place your SQL in a script if the change is going to be performed more than once. For example, if you make a table change to a test database, you will be assured that the same change will be made to the production database(s) when testing is completed weeks later. At my company, the sequential numbers from table change request forms are included in the SQL*Plus script names which provide a good audit trail.

Reducing Effort to Perform Mass Changes

In managing a DBMS, frequently it is necessary to make a change over a range of objects. For example, it may be necessary to make a change to all users who have been granted a particular privilege or role. The effort of performing these types of

changes can be reduced by using a script to generate the SQL using values, such as the usernames, selected from the database.

EXECUTING SCRIPTS FROM SQL*PLUS

First, we will set up our systems to allow the scripts to be executed from UNIX or OS/2. We will take a "bottom-up" approach, testing each layer and building upon it by starting on the UNIX system and moving to the OS/2 system.

For the first step, let's create an SQL*Plus script that we can test with. The following two-line script will do nicely:

```

describe &1
exit
```

The first line describes a table specified by the first parameter passed when the script is invoked. The "exit" command is necessary to return to the UNIX or OS/2 command line when the script has finished executing. If you omit the exit, executing the script will result in an error:

```

Input truncated to 1 characters
unknown command "->" - rest of line ignored.
```

This is due to SQL*Plus trying to interpret the DOS end-of-file marker (^Z). Create the script in your repository (in Part I, *Technical Support*, March 1995, "/util/dba" was used for SQL*Plus scripts). Run SQL*Plus on the UNIX system and test the script to make sure it works by entering the following at the "SQL>" prompt:

```
@/util/dba/describe dual
```

where "/util/dba" is the path to the SQL*Plus scripts in your repository.

EXECUTING SCRIPTS FROM THE UNIX SHELL

For the next step, create a shell script which allows executing an SQL*Plus script from the UNIX prompt. Figure 1 is a shell script which accomplishes the task. This script needs to be modified with your Oracle user ID and, since it is user-specific, placed in the "bin" subdirectory under your own home directory so that it will be found in the execution search path (assuming you set up a bin subdirectory and added \$home/bin to your path as suggested in "Making UNIX Shell Scripts Executable" in Part II).

If desired, additional shell scripts could be created to execute SQL*Plus with different Oracle user IDs. Some scripts may contain generic user IDs, such as an Oracle ID associated with a department or an application schema. Duplication of these

Figure 4: OS/2 REXX Command Procedure u:\cmd\sqlp.cmd Using UNIX Script Which Executes SQL*Plus for UNIX

```
/* For SQLP.CMD, use "syschar = 'p'" */
/* For SQLT.CMD, use "syschar = 't'" */
parse arg script parms
sqlpath = 'u:\dba\'
syschar = 'p'
file = sqlpath || script'.sql'
if stream(file,'c','query exists') == '' then do
  say script 'is not a valid SQL*Plus script name'
  exit
end /* Do */
'@echo off'
'echo sql'syschar'.cmd' script parms
'rexec yourHostname -l yourUsername -p yourPassword
+ csh /usr/yourUsername/bin/sql'syschar script parms
exit
```

Note:

+ indicates a line which is shown as a separate line but should be typed as a continuation of the previous line.

scripts can be avoided by placing them in the bin subdirectory of the repository.

Shell scripts could also be created to execute SQL against remote systems. For example, if there is a production system and a test system, with the repository on the production system, we could set up shell scripts "sqlp" and "sqlt". The

One major advantage of the Oracle DBMS is that the Oracle relational database, networking functions and utilities are available on a variety of platforms, including MVS, NetWare, OS/2 and many flavors of UNIX.

"sqlp" script, shown in Figure 1, executes against the database on the local system while the "sqlt" script, shown in Figure 2, executes against the remote database. Scripts for additional remote systems could be created by copying the "sqlt" script and simply changing the connect string "t:testHostname:TEST" and, if necessary, the username and password. This allows multiple systems to be managed from a single UNIX prompt and avoids having to log into each system. The shell scripts for the remote systems take advantage of Oracle's SQL*Net to provide access to Oracle databases on remote systems. Since SQL*Net, not NFS, provides the communications between systems, NFS is not needed, which may be useful if not all UNIX systems have access to the repository through NFS.

Test your shell scripts by entering the following commands at the UNIX prompt:

```
sqlp describe dual
sqlt describe dual
```

If possible, replace "dual" with the name of a table which exists only on the appropriate target system to ensure the proper database instance is being accessed.

Figure 5: SQL*Plus Script /util/dba/anltbl.sql

```
analyze table &l compute statistics;
exit
```

Figure 6: OS/2 REXX Command Procedure u:\cmd\sqlat.cmd

```
/******
/* u:\cmd\sqlat.cmd
/*
/* Purpose:
/*   Schedule SQL scripts for later execution
/*
/* Usage:
/*   sqlat hhmm date cmdx script parms
/*
/* Examples:
/*   sqlat 11:00pm today sqlp anltbl myTable
/*   sqlat 0100 tomorrow sqlp anltbl myTable
/*   sqlat noon Saturday sqlp anltbl myTable
/******
parse arg time date bin sql parms
if time = '' then
  time = '-l' /* hyphen, lowercase "L" */
else do
  file = 'u:\bin\'bin
  if stream(file,'c','query exists') == '' then do
    say bin "is not a valid Unix script name"
    exit
  end /* Do */
  file = 'u:\dba\'sql'.sql'
  if stream(file,'c','query exists') == '' then do
    say sql "is not a valid SQL*Plus script name"
    exit
  end /* Do */
end /* Do */
'rexec yourHostname -l yourUsername -p yourPassword
+ /bin/echo
+ 'csh /usr/yourUsername/bin/"bin sql parms"'^|at' time date
exit
```

Note:

+ indicates a line which is shown as a separate line but should be typed as a continuation of the previous line.

THE UNIX SHELL SCRIPTS IN DETAIL

The first line in Figure 1 simply displays the command and parameters entered for reference purposes only. The second line displays a blank line by echoing the ASCII line feed (LF) character (octal 012 = decimal 10 = hexadecimal 0A). The beginning of the third line:

```
env ORACLE_HOME=/u/oracle ORACLE_SID=PROD
```

sets up the environment variables needed. The Oracle home directory and instance name (SID) need to be changed. The next part:

```
/u/oracle/bin/sqlplus
yourOracleUsername/yourOraclePassword
```

invokes SQL*Plus with the specified username and password. You will need to change the path for "sqlplus", as well as the username and password. Next comes:

```
@/util/dba/$*
```

The "@" is a shortcut method of executing a script in SQL*Plus. In a UNIX shell script, "\$*" is replaced by all of the parameters



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specified on the command line, which in this case begins with the name of the SQL*Plus script to be executed. The "/util/dba/" is the path for the repository which may need to be changed. The last few characters:

```
\\'
```

pass one extra parameter to the script. The purpose of this will be explained in the next article, when the "sysprivs.sql" script is presented.

In SQL*Plus for UNIX, the "host" command can be used to execute UNIX commands, while in SQL*Plus for OS/2, only OS/2 commands can be executed.

The primary difference between Figure 1 and Figure 2 is where the SID is specified. To execute SQL*Plus locally, the first script uses the ORACLE_SID environment variable. The second script uses a connect string:

```
@t:testHostname:TEST
```

The first "t" indicates a TCP/IP connection, "testHostname" is the name or numeric IP address of the host system, and "TEST" is the SID.

EXECUTING SCRIPTS FROM AN OS/2 COMMAND PROMPT

We also want to execute scripts from the OS/2 command prompt. A REXX command procedure, SQLP.CMD, will be created to execute the script. This is where access to the repository from both UNIX and OS/2 becomes important. There are actually two ways to execute the script.

The first alternative is to execute the script in SQL*Plus for OS/2. If the repository is on a UNIX system, the script will be loaded into SQL*Plus via the mounted NFS drive. Figure 3 shows the REXX command procedure using this method.

One drawback to this approach is one area where OS/2 is incompatible with UNIX due to a carryover from DOS. In UNIX, a forward slash, "/", separates directory names in a file path, while in DOS and OS/2, a backslash character "\"

is used. To use this alternative, you must avoid using directory names in your SQL*Plus scripts.

Another noticeable difference is encountered when using the "host" command to execute a command in the underlying operating system. In SQL*Plus for UNIX, the "host" command can be used to execute UNIX commands, while in SQL*Plus for OS/2, only OS/2 commands can be executed. Since these two operating systems have just a few commands in common, such as "mkdir", "rmdir", and "echo", the usefulness of the "host" command in scripts is limited.

The second alternative is to execute the script in SQL*Plus on the UNIX system. If the repository is on an OS/2 system or server, the script will be loaded via an NFS drive mounted on the UNIX system. The REXX command procedure for this method is shown in Figure 4. Since it remotely executes the UNIX shell scripts described above, it is imperative that they have been created and tested on the system specified by "yourHostname".

Choose one of these and test it by executing the script:

```
sqlp describe dual
```

from an OS/2 command line prompt. You may want to try both SQLP.CMD REXX command procedures to determine which method is faster.

Some of the SQL*Plus scripts presented in this article create temporary files with a "tmp" prefix, to distinguish them from your other files. If you are using the second version of SQLP.CMD, Figure 4, you can separate these temporary files by creating a subdirectory named "tmp" beneath your own home directory and replacing "tmp" with "tmp/" in each of the SQL*Plus scripts.

WHAT HAVE WE ACCOMPLISHED?

The facilities have now been provided which allow setting up an environment where you can type commands which look like this:

```
sqlp script parameters  
sqlt script parameters
```


The exact same command can be entered at an OS/2 command prompt or a UNIX shell prompt on any UNIX system and, if set up properly, the specified script will execute with a particular user ID against a particular Oracle data base as indicated by the command.

SUBMITTING SCRIPTS FOR LATER EXECUTION

Figure 5 shows a simple script, `anlt-bl.sql`, to compute the statistics on a given table. This script should probably be run at night when there are no active users. The "`sqlat.cmd`" file in Figure 6 is a modified version of "`binat.cmd`" (Figure 7 in Part II, *Technical Support*, April 1995) which executes an SQL*Plus script at a given time and date by entering a command such as:

```
sqlat 3:00am tomorrow sqlp anltbl myTable
sqlat the OS/2 command prompt.
```

MAKING USE OF SQL*PLUS SCRIPTS

We have accomplished the goal of making it as easy to execute our SQL*Plus scripts from OS/2 as from UNIX. In the next article, we'll see how to make use of this capability and present a number of scripts for Oracle's SQL*Plus and a way to execute them from either UNIX or OS/2. Parts I and II (*Technical Support*, March and April 1995) presented an approach for executing UNIX commands from OS/2 and showed how to use UNIX shell scripts to perform functions which can be valuable in an Oracle environment. In the final article in this series, a simple C program will be presented which can be used to make the output from these scripts look much neater when it is displayed or printed. 

Was this article of value to you? If so, please circle Reader Response Card No. 39.



NaSPA member Robert Simpson has more than 15 years computing experience, specializing in systems software support. He is experienced in installing and supporting OS/2 and related communications software, as well as data base and communications software on the MVS/ESA platform. He can be reached via CompuServe ID 71520,737 or Internet address 71520.737@compuserve.com.

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Hurry Up and Wait

Are Vendors Taking Their Suite Time?

BY JOHN E. JOHNSTON

It seems as if all of the large software vendors are packaging various software packages into office suites. Some of the major software suites available are Microsoft Office from Microsoft, PerfectOffice from the Novell/WordPerfect Group and SmartSuite from Lotus. Those of us who use OS/2 in a corporate environment are feeling the squeeze from end-user departments to implement some type of "office" suite.

This is a critical decision for many companies as you will have to live with their decision for many years to come. This is where the problems lie; you must think years ahead in order to make a good decision on the type of "office" product to implement, yet the turbulence in the desktop operating system war makes looking into the future very difficult.

Choosing an office suite is a very difficult task for those of us who have built OS/2 into our corporate data processing infrastructure. Before proceeding, several issues must be addressed:

- We all know that running Windows programs under OS/2 can be difficult, and there are some Windows applications that simply cannot be run under WIN-OS/2.

- Will OS/2 survive as a desktop operating system?

- If we choose a Windows-based suite, will we be able to get support from the vendor when running under OS/2 or will we be left to our own devices?

- Is it fair to the corporation to choose a technically-inferior suite based on its OS/2 support?

- Should we consider surrendering and converting to Windows or Windows 95?

- Can we afford to wait and do nothing?

As you can see, OS/2'ers face some daunting decisions.

Let's assume that converting to Windows is not an option and our boss will not let us wait and do nothing. So, we must choose the office suite that best

meets the needs of our environment and will build upon the existing OS/2 investment. We must choose a suite that will grow with OS/2, not away from it. Not an easy task. Let's look more closely at the dominant software suites available.

MICROSOFT OFFICE

The Microsoft Office (MS-Office) suite is comprised of Word, Excel, PowerPoint, Mail and Access. This suite provides a word processor, a spreadsheet program,

spreadsheet program, presentation graphics and an email program.

DECISIONS, DECISIONS

How can we determine which suite will grow with OS/2? Good question. The Microsoft Office suite is perhaps the best office suite on the market today. The problem lies in its compatibility with WIN-OS/2. The current version of Microsoft Office will run under a networked WIN-OS/2 environment. The question we must ask ourselves is, "Will future release of the suite continue to run under WIN-OS/2?" It would be quite embarrassing to choose MS-Office as a standard and then have an "enhancement" make it unable to run under WIN-OS/2. Perhaps if Microsoft would issue a statement of support for WIN-OS/2 for the Office suite, we could all "Win."

This leaves us with PerfectOffice and SmartSuite. Let's take a look at PerfectOffice first.

It was recently announced that OS/2 development on the WordPerfect product would cease. On the surface this looks like the new Novell Applications Group is anti-OS2. As Warp continues to gain market share, will this attitude change? Who knows.

As I look into my crystal ball I see Microsoft and Novell becoming arch enemies as the NetWare vs. NT battle heats up and the new Microsoft Network vs. AT&T NetWare Connect Services battle emerges. Perhaps Novell will then show more interest in promoting OS/2.

Lotus Development, the makers of SmartSuite, has shown more than a passing interest in OS/2. Their Notes product has always been available under OS/2 and Lotus is, so far, the only company to offer a special office package for OS/2. While the other office suites utilize DOS and Windows programs, SmartSuite for OS/2 provides OS/2 programs that take advantage of the power of OS/2 and Presentation Manager. Will Lotus continue to support OS/2?

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a presentation graphics program, an email application, and a database program.

PERFECTOFFICE

PerfectOffice consists of WordPerfect, Quattro Pro, WordPerfect Presentations, InfoCentral, Groupwise Remote Client, and Envoy. This suite provides a word processor, a spreadsheet program, a presentation graphics program, a personal information manager, an email program, and an electronic publisher.

SMARTSUITE

SmartSuite is a combination of AmiPro for OS/2, 1-2-3 for OS/2, Freelance Graphics for OS/2 and cc:Mail for OS/2. This suite provides word processing, a


As recently as October 1994, Lotus showed enthusiasm about the prospect of OS/2 Warp broadening user interest in native OS/2 applications. I have noticed that many users have been complaining on the Lotus CompuServe forum that the OS/2 versions of the SmartSuite products are one or two release levels behind the Windows versions.

WHO YA GONNA CALL?

Choosing an office suite, at this stage of the OS war, is risky business. What happens if Windows 95 really does take the world by storm? What happens if the office suite you choose drops support for OS/2? Lotus appears to be the only game in town for those of us dedicated to OS/2, but will they stop development of the OS/2 product line in favor of Windows 95? IBM has been promoting Warp very aggressively, but will they keep it up?

Choosing an office suite, at this stage of the OS war, is risky business. What happens if Windows 95 really does take the world by storm?

These are some very valid, career-steering issues. Worse yet, many companies are just hanging out, waiting to see what happens, afraid to make major decisions like this (and for good reason).

If you have any questions, comments or ideas for future topics for this column, feel free to contact me via CompuServe address 73473,2146. 

Was this column of value to you? If so, please circle Reader Response Card No. 47.

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NaSPA member John E. Johnston is manager of technical support and communications for a major hospital in Pennsylvania. He designs and maintains cross-platform local and wide area networks utilizing NetWare, OS/2, DOS and Windows.

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